

Please amend the claims as follows:

**In the Claims**

1-5. (canceled)

6. (currently amended) ~~The system of claim 5;~~

A system for providing power to a load, the system comprising:

a first input to receive AC power from a first AC power source;

a second input to receive AC power from a second AC power source;

a third input to receive DC power from a first DC power source;

an output that provides output AC power to the load;

converter circuitry, coupled to the first, second and third inputs and the output, and controllable to select from the first AC power source, the second AC power source and the first DC power source to provide input power and derive the output AC power from the input power;

a first bypass device coupled to the first input and the output and controllable to operate in a bypass mode to couple the first input to the output to provide AC power from the first AC power source directly to the output, bypassing the converter circuitry; and

a second bypass device coupled to the second input and the output and controllable to operate in a bypass mode to couple the second input to the output to provide AC power from the second AC power source directly to the output, bypassing the converter circuitry;

wherein the converter circuitry includes a plurality of controllable switches, each of the controllable switches being coupled to one of the first, second and third inputs to control current draw by the converter circuitry from the first AC power source, the second AC power source and the first DC power source;

wherein, in a first power source transition mode, the converter circuitry is adapted to detect an input AC voltage waveform period of the first AC power source and to control the controllable switches such that the converter circuitry draws current from the first AC power source during a first portion of the waveform period and the converter circuitry draws current from the first DC power source during a second portion of the waveform period for multiple waveform periods;

wherein, in a second power source transition mode, the converter circuitry is adapted to detect an input AC voltage waveform period of the second AC power source and to control the controllable switches such that the converter circuitry draws current from the second AC power source during a first portion of the waveform period and the converter circuitry draws current from the first DC power source during a second portion of the waveform period for multiple waveform periods;

further comprising a fourth input to receive DC power from a second DC power source, and wherein the converter circuitry is coupled to the fourth input through a controllable switch that is controlled in the first transition mode to draw current from the second DC power source during the first portion of the waveform period for multiple waveform periods.

7. (previously presented) The system of claim 6, wherein the converter circuitry includes a first DC regulator circuit having an input and having an output that produces a first DC voltage, and a second DC regulator circuit having an input and having an output that produces a second DC voltage, and wherein the input of the first DC regulator circuit is coupled to the first input of the system through a first one of the plurality of controllable switches, the input of the first DC regulator circuit is coupled to the second input through a second one of the plurality of controllable switches, the input of the first DC regulator circuit is coupled to the third input through a third one of the plurality of controllable switches, the input of the second DC regulator circuit is coupled to the first input of the system through a fourth one of the controllable switches, the input of the second DC regulator circuit is coupled to the second input of the system through a fifth one of the controllable switches, and the input of the second DC regulator circuit is coupled to the fourth input of the system through a sixth one of the plurality of controllable switches.

8. (original) The system of claim 7, wherein the first DC voltage has approximately the same magnitude and opposite polarity of the second DC voltage.

9. (original) The system of claim 8, further comprising a DC to AC converter coupled to the outputs of the first and second DC regulator circuits and the output of the system to provide output AC power derived from the first DC voltage and the second DC voltage.

10. (original) The system of claim 9, wherein each of the controllable switches includes a thyristor.

11. (original) The system of claim 10, further comprising the first DC source and the second DC source with a source voltage of the first DC source being of approximately equal magnitude and opposite polarity of a source voltage of the second DC source.

12-13. (canceled)

14. (currently amended) ~~The system of claim 12;~~ A system for providing power to a load, the system comprising:

a first input to receive AC power from a first AC power source;  
a second input to receive AC power from a second AC power source;  
a third input to receive DC power from a first DC power source;  
an output that provides output AC power to the load; and  
converter circuitry, coupled to the first, second and third inputs and the output, adapted to provide the output AC power derived from at least one of the first AC power source, the second AC power source and the first DC power source;

wherein the converter circuitry includes a plurality of controllable switches, each of the controllable switches being coupled to one of the first, second and third inputs to control current draw by the converter circuitry from the first AC power source, the second AC power source and the first DC power source; wherein, in a first power source transition mode, the converter circuitry is adapted to detect an input AC voltage waveform period of the first AC power source and to control the controllable switches such that the converter circuitry draws current from the first AC power source during a positive portion of the waveform period and the converter

circuitry draws current from the first DC power source during a negative portion of the waveform period for multiple waveform periods;

wherein, in a second power source transition mode, the converter circuitry is adapted to detect an input AC voltage waveform period of the second AC power source and to control the controllable switches such that the converter circuitry draws current from the second AC power source during a positive portion of the waveform period and the converter circuitry draws current from the first DC power source during a negative portion of the waveform period for multiple waveform periods;

further comprising a fourth input to receive DC power from a second DC power source, and wherein the converter circuitry is coupled to the fourth input through a controllable switch that is controlled in the first power source transition mode to draw current from the second DC power source during the positive portion of the waveform period for multiple waveform periods.

15. (previously presented) A system for providing power to a load, the system comprising:

- a first input to receive AC power from a first AC power source;
- a second input to receive AC power from a second AC power source;
- a third input to receive DC power from a first DC power source;
- an output that provides output AC power to the load;

converter circuitry, coupled to the first, second and third inputs and the output, adapted to provide the output AC power derived from at least one of the first AC power source, the second AC power source and the first DC power source, wherein the converter circuitry includes a plurality of controllable switches, each of the controllable switches being coupled to one of the first, second and third inputs to control current draw by the converter circuitry from the first AC power source, the second AC power source and the first DC power source; wherein, in a first power source transition mode, the converter circuitry is adapted to detect an input AC voltage waveform period of the first AC power source and to control the controllable switches such that the converter circuitry draws current from the first AC power source during a first portion of the

period and the converter circuitry draws current from the first DC power source during a second portion of the period for multiple periods; and

a fourth input to receive DC power from a second DC power source, and wherein the converter circuitry is coupled to the fourth input through a controllable switch that is controlled in the first power source transition mode to draw current from the second DC power source during the first portion of the period for multiple periods;

wherein the converter circuitry includes a first DC regulator circuit having an input and having an output that produces a first DC voltage, and a second DC regulator circuit having an input and having an output that produces a second DC voltage, and wherein the input of the first DC regulator circuit is coupled to the first input of the system through a first one of the plurality of controllable switches, the input of the first DC regulator circuit is coupled to the second input through a second one of the plurality of controllable switches, the input of the first DC regulator circuit is coupled to the third input through a third one of the plurality of controllable switches, the input of the second DC regulator circuit is coupled to the first input of the system through a fourth one of the controllable switches, the input of the second DC regulator circuit is coupled to the second input of the system through a fifth one of the controllable switches, and the input of the second DC regulator circuit is coupled to the fourth input of the system through a sixth one of the plurality of controllable switches.

16. (previously presented) The system of claim 15, wherein the first DC voltage has approximately the same magnitude and opposite polarity of the second DC voltage.

17. (original) The system of claim 15, further comprising a DC to AC converter coupled to the outputs of the first and second DC regulator circuits and the output of the system to provide output AC power derived from the first DC voltage and the second DC voltage.

18. (original) The system of claim 12, wherein each of the controllable switches includes a thyristor.

19. (previously presented) The system of claim 14, further comprising the first DC power source and the second DC power source with a source voltage of the first DC power source being of approximately equal magnitude and opposite polarity of a source voltage of the second DC power source

20-24. (canceled)

25. (currently amended) ~~The system of claim 24;~~ A system for providing power to a load, the system comprising:

a first input to receive AC power from a first AC power source;

a second input to receive AC power from a second AC power source;

a third input to receive DC power from a first DC power source;

an output that provides output AC power to the load;

converter means for selecting from the first AC power source, the second AC power source and the first DC power as a source for input power and deriving the output AC power from the input power; and

bypass means for selectively providing AC power from the first AC power source directly to the output, bypassing the converter means;

wherein the bypass means include means for selectively providing AC power from the second AC power source directly to the output, bypassing the converter means; and  
wherein the converter means includes means for transitioning a draw of input current by the converter means from the first AC power source at the first input to the first DC power source at the third input, such that during a first transition period, input current is drawn by the converter means alternately from the first AC power source and the first DC power source;

wherein the converter means includes means for transitioning a draw of input current by the converter means from the first DC power source at the third input to the second AC power source at the second input, such that during a second transition period, input current is drawn by the converter means alternately from the first DC power source and the second AC power source;

further comprising a fourth input to receive DC power from a second DC power source, and wherein the converter means includes means for transitioning a draw of input current by the converter means from the first AC power source at the first input to the second DC power source at the fourth input, such that during the first transition period, input current is drawn by the converter means alternately from the first AC power source and the second DC power source.

26. (original) The system of claim 25, wherein the converter means includes means for transitioning a draw of input current by the converter means from the second DC power source at the fourth input to the second AC power source at the second input, such that during the second transition period, input current is drawn by the converter means alternately from the second DC power source and the second AC power source.

27. (original) The system of claim 26, wherein the converter means includes regulator means for producing a first regulated DC voltage, and a second regulated DC voltage.

28. (original) The system of claim 27, wherein the first regulated DC voltage has approximately the same magnitude and opposite polarity of the second regulated DC voltage.

29. (original) The system of claim 28, further comprising means for converting the first regulated DC voltage and the second regulated DC voltage to an AC voltage to provide output AC power.

30. (original) The system of claim 29, further comprising the first DC power source and the second DC power source with a source voltage of the first DC power source being of approximately equal magnitude and opposite polarity of a source voltage of the second DC power source.

31-32. (canceled)

33. (currently amended) The system of claim 32, A system for providing power to a load, the system comprising:

a first input to receive AC power from a first AC power source;

a second input to receive AC power from a second AC power source;

a third input to receive DC power from a first DC power source;

an output that provides output AC power to the load; and

converter means, coupled to the first, second and third inputs, for providing output power derived from at least one of the first AC power source, the second AC power source and the first DC power source;

wherein the converter means includes means for transitioning a draw of input current by the converter means from the first AC power source at the first input to the first DC power source at the third input, such that during a first transition period, input current is drawn by the converter means alternately from the first AC power source and the first DC power source;

wherein the converter means includes means for transitioning a draw of input current by the converter means from the first DC power source at the third input to the second AC power source at the second input, such that during a second transition period, input current is drawn by the converter means alternately from the first DC power source and the second AC power source;

further comprising a fourth input to receive DC power from a second DC power source, and wherein the converter means includes means for transitioning a draw of input current by the converter means from the first AC power source at the first input to the second DC power source at the fourth input, such that during the first transition period, input current is drawn by the converter means alternately from the first AC power source and the second DC power source.

34. (original) The system of claim 33, wherein the converter means includes means for transitioning a draw of input current by the converter means from the second DC power source at the fourth input to the second AC power source at the second input, such that during the second transition period, input current is drawn by the converter means alternately from the second DC power source and the second AC power source.



35. (currently amended) The system of claim ~~22~~ 34, wherein the converter means includes regulator means for producing a first regulated DC voltage, and a second regulated DC voltage.

36. (original) The system of claim 35, wherein the first regulated DC voltage has approximately the same magnitude and opposite polarity of the second regulated DC voltage.

37. (original) The system of claim 36, further comprising means for converting the first regulated DC voltage and the second regulated DC voltage to an AC voltage to provide output AC power.

38. (previously presented) The system of claim 33, further comprising the first DC power source and the second DC power source with a source voltage of the first DC power source being of approximately equal magnitude and opposite polarity of a source voltage of the second DC power source.

39-40. (canceled)

41. (currently amended) ~~The method of claim 40;~~ A method of providing power to a load using an uninterruptible power supply (UPS) having a first input that can be selectively coupled to a first AC source, a second AC source, and a first DC source; the method comprising:  
coupling the first input of the UPS to the first AC source and providing output power to a load based on AC power from the first AC source;  
detecting a loss of the first AC source ;  
coupling the first input of the UPS to the first DC source and providing output power from the UPS based on DC power from the first DC source; and

transitioning a draw of input current at the first input from the first DC source to the second AC source by alternately coupling the first DC source and the second AC source to the first input of the UPS;

detecting return of the first AC Source;

transitioning a draw of input current at the first input from the second AC source to the first DC source by alternately coupling the second AC source and the first DC source to the first input of the UPS; and

transitioning a draw of input current at the first input from the first DC source to the first AC source by alternately coupling the first DC source and the first AC source to the first input of the UPS;

wherein the UPS has a second input that can be selectively coupled to the first AC source, the second AC source, and a second DC source, the method further comprising:

coupling the second input of the UPS to the first AC source and providing output power to a load based on AC power from the first AC source;

after detecting the loss of the first AC source, coupling the second input of the UPS to the second DC source and providing output power from the UPS based on DC power from the second DC source; and

transitioning a draw of input current at the second input from the second DC source to the second AC source by alternately coupling the second DC source and the second AC source to the second input of the UPS.

42. (original) The method of claim 41, further comprising:

detecting the return of the first AC Source;

transitioning a draw of input current at the second input from the second AC source to the second DC source by alternately coupling the second AC source and the second DC source to the second input of the UPS; and

transitioning a draw of input current at the second input from the second DC source to the first AC source by alternately coupling the second DC source and the first AC source to the second input of the UPS.